The Globs Topography Mission

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The Global Topography Mission (GTM) aka TOPSAT or Light-SAR has the main goal of obtaining a nearly global topography map with about 3 m accuracy and 30 m resolution. Several designs have been investigated. The current choice consists of two satellites each carrying L-band radars in order to obtain interferometric SAR images. Data obtained in the first six months will produce two Digital Elevation Maps (DEM's) satisfying the above topographic requirements. Recently, there has been keen interest is combining repeated SAR images using various techniques to detect changes in the topography with high precision. Applications of this include measurements of ground upswelling in volcanic areas and the surface changes due to the tectonic motion of earthquakes. The satellites can also be configured to do along-track interferometry (ATI) over the oceans and obtain ocean current information complemental to that obtained from the TOPEX/POSEIDON mission. The various mission aspects involved in doing the Change Detection and ATI after the DEM's have been obtained will be discussed. Options include Global Change Monitoring as well as the repeated analysis of selected sites. Also the recently investigated method of using autonomous on-board navigation during the DEM phase will be presented. This involves both the maintenance of the swath pattern on the ground and the delicate operation of flying the two satellites in close proximity.

Submittal Information:

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